

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A communication apparatus comprising:

~~a modulation part for generating a plurality of subcarriers modulation signals, at least two of the subcarriers including same data, using an impulse modulation signal generated by impulse modulating transmission data;~~
a transmission modulator for impulse modulating transmission data into subcarrier modulation signals using a plurality of subcarriers;

~~a transmission part for amplifying the generating a plurality of subcarriers modulation subcarrier-transmission signals and generating a plurality of subcarrier-transmission signals by amplifying the plurality of subcarrier modulation signals;~~

~~a filter section for inputting-filtering the plurality of subcarrier-transmission signals and band-limiting each of the plurality of the subcarrier-transmission signals in order to band-limit bandwidths of the plurality of subcarrier-transmission signals within a frequency range of the frequency band of the impulse modulation signal, and outputting a plurality of transmission signals, and being band-limited within a bandwidth allocated for each of the subcarriers the subcarrier transmission signals having a cumulative bandwidth narrower than a bandwidth of the subcarrier modulation signals;~~

~~a carrier control section for controlling the subcarriers for use in communication depending upon information amount, significance and communication propagation condition;~~
and

~~an antenna section for multiplexing and radiating at least two of the filtered subcarrier transmission signals including the same data.~~

2. (Currently Amended) A communication apparatus according to claim ~~35~~claim 1, further comprising a reception ~~modulation part~~modulator for detecting reception data and examining a reception power on each subcarrier,

to notify to the subcarrier control section a permission/non-permission to use the subcarrier, depending upon the reception power examined by the reception ~~demodulation~~ partdemodulator.

3. (Original) A communication apparatus according to claim 2, wherein the carrier control section causes hopping two or more of the subcarriers.

4. (Original) A communication apparatus according to claim 2, wherein the carrier control section causes spread on two or more of the subcarriers.

5. (Currently Amended) A communication apparatus according to claim 1, wherein the ~~modulation-part~~transmission modulator changes an on-frequency allocation of the subcarriers according to communication condition.

6. (Currently Amended) A communication apparatus according to claim 1, wherein the ~~modulation-part~~transmission modulator assigns a narrower band to the subcarrier having a lower center frequency and a broader band to the subcarrier having a higher center frequency.

7. (Previously Presented) A communication apparatus according to claim 1, further comprising a channel control section for selecting and controlling the subcarrier for use on each channel,

the channel control section performing communication over two or more channels with different ones of the subcarriers.

8. (Original) A communication apparatus according to claim 7, wherein the channel control section performs communication over two or more channels with a combination of different ones of the subcarriers.

9. (Currently Amended) A communication apparatus according to ~~claim 35~~claim 1, wherein carrier control ~~part-section~~ performs communication of control information by at least one of the subcarriers.

10. (Currently Amended) A communication apparatus according to claim 9, wherein the ~~modulation-section~~transmission modulator multiplexes together the pieces of control information on ~~three-two~~ or more channels by use of any one of time division ~~multiplex~~

~~modulation-section~~ transmission modulator ~~transmission modulator~~, in at least one subcarrier of two or more of the subcarriers.

11. (Currently Amended) A communication apparatus according to claim 2, wherein the ~~modulation-section~~ transmission modulator carries out frequency division duplex by use of two or more of the subcarriers.

12. (Currently Amended) A communication apparatus according to claim 9, wherein the ~~modulation-section~~ transmission modulator carries out frequency division duplex by use of three or more of the subcarriers.

13. (Currently Amended) A communication apparatus according to claim 9, wherein the subcarrier with which the ~~modulation-part~~ transmission modulator is to communicate the control information has a center frequency lower than a center frequency of the other subcarrier.

14. (Currently Amended) A communication apparatus according to claim 9, wherein the subcarrier with which the ~~modulation-part~~ transmission modulator is to communicate the control information has a band narrower than a band of the other subcarrier.

15. (Previously Presented) A communication apparatus according to claim 7, wherein the modulation part divides one symbol into two or more of the subcarriers, thereby multiplexing two or more channels.

16. (Currently Amended) A communication apparatus according to claim 15, wherein the ~~modulation-part~~ transmission modulator causes frequency hopping in one symbol by use of two or more of the subcarriers, to thereby multiplexing two or more channels.

17. (Currently Amended) A communication apparatus according to claim 15, wherein the ~~modulation-part~~ transmission modulator causes encoded spread of one symbol onto two or more of the subcarriers, to thereby multiplexing two or more channels.

18. (Currently Amended) A communication apparatus according to claim 15, wherein the ~~modulation-part~~ transmission modulator causes spread of one symbol onto two or more of the subcarriers and two or more chips, thereby multiplexing two or more channels.

19. (Currently Amended) A communication apparatus according to claim 1, wherein the antenna ~~part-section~~ comprises a plurality of antenna elements.

20. (Currently Amended) A communication apparatus according to claim 1, wherein the antenna ~~part-section~~ has a frequency characteristic of a multi-band characteristic.

21. (Original) A communication apparatus according to claim 19, wherein the antenna elements are different in center frequency of frequency characteristic.

22. (Original) A communication apparatus according to claim 21, wherein the antenna elements have band characteristics not to overlap on a frequency axis.

23. (Currently Amended) A communication apparatus according to claim 2, wherein the antenna ~~part-section~~ receives radio wave on a subcarrier-by-subcarrier basis and outputs the subcarrier signal to the reception ~~modulation-part~~modulator.

24. (Original) A communication apparatus according to claim 19, wherein the antenna elements have frequency characteristics corresponding to the subcarriers and radiate subcarrier transmission signal as a radio wave.

25. (Currently Amended) A communication apparatus according to claim 2, wherein the reception ~~demodulation-part~~demodulator has a compensation ~~part-section~~ for detecting a characteristic of a ~~subcarrier-based signal sub-systems~~signal sequence of each subcarrier from a known signal received from a communication partner and compensating for the characteristic of the signal sub-system.

26. (Currently Amended) A communication apparatus according to claim 25, wherein the characteristic of the signal sub-system is a frequency characteristic.

27. (Currently Amended) A communication apparatus according to claim 25, wherein the characteristic of the signal sub-system is a time response characteristic, the compensation ~~part-compensating-for~~section compensates the time response characteristic by a correlation signal of a correlator.

28. (Currently Amended) A communication apparatus according to claim 2, wherein the reception ~~demodulation-part~~demodulator comprises

a spread code storing part-section for storing a spread code and extracting a spread code corresponding to the subcarrier, and

a dispread part-section for making a convolution operation of the subcarrier signal and the spread code extracted at the spread code storing section.

29. (Currently Amended) A communication apparatus according to claim 1, wherein the transmission ~~demodulation-part~~demodulator comprises

a spread code storing part-section for storing a spread code and extracting a spread code corresponding to the subcarrier, and

a spread part-section for making a direct spread onto the subcarrier from the modulation signal divided into the subcarriers and the spread code extracted at the spread code storing part-section.

30. (Currently Amended) A communication apparatus according to claim 2, wherein the reception ~~demodulation-part~~demodulator comprises

a switch part-section for switching over by frequency hopping on the subcarrier,

the carrier control part-section carrying out the control in the switch part-section.

31. (Currently Amended) A communication apparatus according to claim 1, wherein the ~~demodulation-part~~transmission demodulator comprises

a switch part-section for switching over by frequency hopping on the subcarrier,

the carrier control part-section carrying out the control in the switch section.

32. (Currently Amended) A communication method ~~for impulse modulation communication with using a plurality of subcarriers in a frequency range of the frequency band of an impulse modulation signal, at least two of the subcarriers including same data being multiplexed and radiated from an antenna section, the communication method comprising the~~ steps of:

impulse modulating transmission data into subcarrier modulation signals using a plurality of subcarriers;

generating a plurality of subcarriers transmission signals by amplifying the plurality of subcarrier modulation signals; and

filtering the subcarrier transmission signals, the subcarrier transmission signals being band limited within a bandwidth allocated for each of the subcarriers, the subcarrier transmission signals having a cumulative bandwidth narrower than a bandwidth of the subcarrier modulation signals

transmitting, by an antenna, the filtered subcarrier transmission signals, and

a step of measuring a reception power on every subcarrier each of the subcarriers in a non-signal state, in an initial state prior to starting a communication; and

a step of determining the reception power measured and selecting the subcarrier usable in communication, communication.

~~wherein each of the plurality of subcarriers is band limited within a frequency range of the frequency band of the impulse modulation signal, and the at least two multiplexed subcarriers being received on the antenna section.~~

33. (Original) A communication method according to claim 32, wherein the determination is to use, in a later communication, the subcarrier having the reception power equal to or smaller than a predetermined value.

34. (Original) A communication method according to claim 33, further comprising
a step of measuring a reception power on every subcarrier of a received known signal at a start of communication; and

a step of selecting the subcarrier having the measured reception power equal to or greater than a predetermined value, as a subcarrier usable in communication.

35. (Currently Amended) A communication apparatus according to claim 1, further comprising a carrier control part section for controlling the subcarriers for use in communication depending upon information amount, significance and communication propagation condition.